

I claim:

1. A labeling device comprising:
a label dispensing unit operable to deliver labels to a label delivery location; and
a label transport and tamping assembly operable to receive labels from said unit and
5 to apply the delivered labels to packages or the like,
said assembly including a plurality of adjacent, hollow bodies each presenting a
label-engaging end, said bodies shiftable between a label-receiving position
and a label-applying position, and apparatus for creating reduced pressure
conditions at said label-engaging ends when said bodies are in said label-
10 receiving position thereof.
2. The device of claim 1, said bodies comprising hollow plates located
in side-by-side adjacency.
- 15 3. The device of claim 2, said apparatus including a fan assembly located
adjacent the ends of said plates remote from said label-engaging ends thereof.
4. The device of claim 2, each of said plates including internal baffle
structure for evening airflow through the plates.
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5. The device of claim 2, said assembly including a belt assembly
presenting a plurality of laterally spaced apart belts each having a label-supporting run and
operable to move said labels from said delivery location to a label pickup location, said plates
being located between said belts for passage therethrough upon movement of the plates
25 between said label-receiving and label-applying positions.
6. The device of claim 1, said assembly including an actuator for
simultaneous shifting of said bodies between said label-receiving and label-applying
positions.

7. The device of claim 1, said unit including a label supply reel, a tensioning assembly and a label peelbar adjacent said pickup location.

8. The device of claim 1, including a support assembly, said transport and tamping assembly being operably coupled with said support assembly for adjustment of the transport and tamping assembly as a whole relative to the support assembly.

9. The device of claim 8, said shiftable bodies and apparatus mounted upon at least one slide plate, said slide plate operatively coupled with said support assembly.

10. A labeling method comprising the steps of:
moving labels to a label pickup location; and
engaging said labels and moving the engaged labels from the pickup location to a label-applying location in order to apply the labels against packages or the like,
said engaging and moving step comprising the steps of providing a plurality of adjacent, hollow bodies each presenting a label-engaging end, and shifting said bodies between a label-receiving position at said pickup location and a label-applying position, and creating reduced pressure conditions at said ends when the bodies are in the label-receiving position thereof.

11. The method of claim 10, said bodies comprising hollow plates located in side-by-side adjacency.

12. The method of claim 11, said reduced pressure creating step including the step of drawing air through the ends of said plates remote from said label-engaging ends thereof.

13. The method of claim 12, including the step of causing said air drawn through said plates to traverse tortuous airflow paths through the plates.

14. The method of claim 11, said assembly including a belt assembly presenting a plurality of laterally spaced apart belts each having a label-supporting run, said plates being located between said belts for passage therethrough upon movement of the plates between said label-receiving and label-applying positions.

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15. A label tamping device comprising a plurality of adjacent, hollow plates located in side-by-side relationship and shiftable between a label-receiving position and a label-applying position, each of said plates presenting an open label-engaging end and an open remote end, and apparatus located proximal to said remote ends for drawing air
10 through said hollow plates in order to create reduced pressure conditions at said label-engaging ends.

16. The device of claim 15, each of said plates including internal baffle structure for evening air flow through the plates.

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17. The device of claim 15, said apparatus comprising a fan assembly.

18. The device of claim 15, including a slotted manifold located adjacent said open ends of said plates, with the plates received within slots of said manifold and
20 shiftable relative thereto.

19. A labeling device comprising:
a label dispensing unit operable to deliver labels to a label delivery location;
a label transport and tamping assembly operable to receive labels from said unit and
25 to apply the delivered labels to packages or the like,
said assembly including a plurality of adjacent bodies each presenting a label-engaging end and a remote end, said bodies shiftable between a label-receiving position and a label-applying position; and
a support assembly, said transport and tamping assembly being operably coupled
30 with said support assembly for adjustment of the transport and tamping assembly as a whole relative to the support assembly.

20. The device of claim 19, said shiftable bodies and apparatus mounted upon at least one slide plate, said slide plate operatively coupled with said support assembly.

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21. A roller comprising:

an elongated, rotatable, tubular roller body presenting a length L, an outside diameter D, and a total surface area SA; and

a pair of spaced-apart bearings supporting the body for said rotation thereof, said body having a plurality of spaced-apart openings formed therein each presenting

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a void area and a maximum transverse dimension d, the ratio d/D being at least about 0.4.

22. The roller of claim 21, the ratio d/D being from about 0.4-0.8.

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23. The roller of claim 22, the ratio d/D being from about 0.5-0.7.

24. The roller of claim 21, the sum of the void areas of said openings being VA, the ratio VA/SA being from about 0.12-0.50.

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25. The roller of claim 24, said ratio VA/SA being from about .16-.20.

26. The roller of claim 21, at least one of said bearings having a plurality of through-areas formed therein permitting passage of cleaning fluid through the bearing.

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27. A roller comprising:

an elongated, rotatable, tubular roller body presenting a length L, an outside diameter D, and a total surface area SA; and

a pair of spaced-apart bearings supporting the body for said rotation thereof,

said body having a plurality of spaced-apart openings formed therein each presenting

a void area and a maximum transverse dimension d, the total void area

presented by said openings being VA, the ratio VA/SA being from about .12-

.50.

28. The roller of claim 27, the ratio VA/SA being from about .16-.20.

29. The roller of claim 27, at least one of said bearings having a plurality of through-areas formed therein permitting passage of cleaning fluid through the bearing.

30. A roller comprising:

an elongated, rotatable, tubular roller body; and

a pair of spaced-apart bearings supporting the body for said rotation thereof,

at least one of said bearings having a plurality of through-areas formed therein permitting passage of cleaning fluid through the bearing.

31. In a web handling device including a plurality of elongated, axially rotatable, web-supporting rollers, the improvement which comprises using as at least one of said rollers, a roller including:

an elongated, rotatable, tubular roller body presenting a length L, an outside diameter

D, and a total surface area SA; and

a pair of spaced-apart bearings supporting the body for said rotation thereof,

said body having a plurality of spaced-apart openings formed therein each presenting

a void area and a maximum transverse dimension d, the ratio d/D being at

least about 0.4.

32. The web handling device of claim 31, said web handling device forming a part of a labeling device.

5 33. In a web handling device including a plurality of elongated, axially rotatable, web-supporting rollers, the improvement which comprises using as at least one of said rollers, a roller including:

an elongated, rotatable, tubular roller body presenting a length L, an outside diameter

D, and a total surface area SA; and

a pair of spaced-apart bearings supporting the body for said rotation thereof,

10 said body having a plurality of spaced-apart openings formed therein each presenting a void area and a maximum transverse dimension d, the total void area presented by said openings being VA, the ratio VA/SA being from about .12-.50.

15 34. The web handling device of claim 33, said web handling device forming a part of a labeling device.